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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/067,567

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John M. Kowalski

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EXAMINER

SOL, ANTHONY M

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,567

Applicant(s)

KOWALSKI, JOHN M.

Examiner

Anthony Sol

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-17 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-11 is/are rejected.
- 7) ☒ Claim(s) 5 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Applicant's Amendment filed 2/3/2006 is acknowledged.
- Claims 1 and 6 are amended.
- Claims 13-17 are added.
- No claims have been canceled.
- Claims 1-17 remain pending.

Double Patenting

1. Claim 12 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 13. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 4, 6 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated

by U.S. Patent No. 6,795,418 B2 ("Choi").

Regarding claims 1 and 6,

Choi discloses a WLAN (claimed mechanism for governing channel resources, claimed local area network) connection setup where it can transmit asynchronous traffic based on a random access-based MAC protocol (claimed asynchronous, contention based). Choi shows in Fig. 2 that beacon transmission from the AP (claimed transmit specification controller) informs the STAs what time slot or duration each station is assigned to (claimed granting a transmit specification), including time slot or duration (T4, T5) for random access (col. 4, lines 35-66; claim 1 - a mechanism for governing channel resources in the asynchronous, contention-based, local area network, including a transmit specification controller for granting a transmit specification to a data flow from one station on the network to another station on the network; claim 6 - governing channel resources in the asynchronous, contention-based, local area network, including controlling transmit specifications for granting a transmit specification to a data flow from one station on the network to another station on the network).

Choi further discloses when STA 2 of Fig. 3A receives a "virtual" token from STA 1's transmission, e.g., EOF data (claimed TXOP mechanism for terminating transmit opportunities), STA 2 knows from the virtual token that it may utilize the remainder of STA 1's unused time slot (claimed changing the length of a superframe)(col. 5, lines 17-20; claim 1 - a TXOP mechanism for terminating transmit opportunities for stations which have successfully completed data transmission, thereby changing the length of a superframe; claim 6 - terminating transmit opportunities with a TXOP mechanism for

stations which have successfully completed data transmission, thereby changing the length of a TXOP).

4. Regarding claims 4 and 11,

Choi discloses a system and method that covers all the limitations of the parent claim.

Choi discloses that when the AP polls STA 2, a sub-portion of STA 1's unused time slot is used for polling, but realized is an availability of an unused portion of STA 1's slot from T2" to T2, as can be seen from the network frame (superframe) of Fig. 4. Choi further discloses that under circumstances where the AP may want to transmit its pending data piggybacked by the polling information, the network frame of Fig. 5 shows that this uses a larger amount of polling time resulting in less available transmission time for STA 2 with STA 1's unused slot portion. In other words, the available transmission time varies (expands and contracts) from superframe to superframe (Col.6, lines 28; claim 4 - TXOP mechanism, during successive superframes, expands and contracts the TXOP durations of the stations in the network as a function of completed polling interval relative to the requested polling interval; claim 11 - setting the length of a TXOP having a variable size with a TXOP mechanism, which, during successive superframes, expands and contracts the TXOP durations of the stations in the network as a function of completed polling interval relative to the requested polling interval.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 3, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi in view of Pub. No. US 2002/0131414 A1 ("Hadzic").

Regarding claims 2, 3, 7, and 8,

Choi does not disclose a buffer size predictor for predicting the required buffer size as a function of the transmit specification.

Hadzic discloses that a necessary buffer size can be easily determined using techniques such as queuing theory (Pg. 5, para. 42, lines 10-13; claim 2 - a buffer size predictor for predicting the required buffer size as a function of the transmit specification; claim 7 - predicting the required buffer size as a function of the transmit specification and channel conditions). It is inherent that determining the necessary buffer size minimizes buffer size (Claim 3 – the buffer size predictor minimizes buffer size; claim 8 – minimizing the buffer size).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention was made to modify bandwidth-sharing algorithm and mechanism of Choi to include a technique such as queuing theory to determine necessary buffer size as disclosed by Hadzic so that the packet lengths can be controlled (Hadzic, pg. 5,

para. 42, lines 2-4, 9-10). One skilled in the art would have been motivated to combine Choi with Hadzic (collectively "Choi-Hadzic") to generate the claimed invention with a reasonable expectation of success.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choi in view of U.S. Patent No. 6,442,164 B1 ("Wu").

Choi does not disclose predicting the required buffer size as a function of the expected required throughput.

Wu discloses that after allocation bandwidth has been determined, allocation buffer size, which in at least some circumstances is dependent on the allocation bandwidth, can then be determined (Col. 8, lines 57-60; claim 9 - predicting the required buffer size as a function of the expected required throughput).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention was made to modify bandwidth-sharing algorithm and mechanism of Choi to include a method to allocate buffer size dependent on the allocation of bandwidth as taught by Wu to satisfy the local queuing delay requirement (Wu, col. 8, line 36). One skilled in the art would have been motivated to combine Choi with Wu (collectively "Choi-Wu") to generate the claimed invention with a reasonable expectation of success.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choi in view of Wu, and in further view of Hadzic.

Choi-Wu does not explicitly disclose minimizing the buffer size.

Hadzic discloses that a necessary buffer size can be easily determined using techniques such as queuing theory (Pg. 5, para. 42, lines 10-13). It is inherent that determining the necessary buffer size minimizes buffer size (Claim 10 – minimizing the buffer size).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention was made to modify bandwidth-sharing algorithm and mechanism of Choi-Wu to include a technique such as queuing theory to determine necessary minimum buffer size as disclosed by Hadzic so that the packet lengths can be controlled (Hadzic, pg. 5, para. 42, lines 2-4, 9-10). One skilled in the art would have been motivated to combine Choi-Wu with Hadzic (collectively “Choi-Wu-Hadzic”) to generate the claimed invention with a reasonable expectation of success.

Allowable Subject Matter

9. Claims 13-17 are allowed.
10. Claims 5 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. For claim 12, note the Double Patenting Objection in paragraph 1 above.

The following is an examiner's statement of reasons for allowance or indication of allowable subject matter :

Regarding claims 5, 12, and 13,

The prior art of record does not teach or fairly suggest governing channel resources in the asynchronous, contention-based, local area network, including controlling transmit specifications for granting a transmit specification to a data flow from one station on the network to another station on the network; setting the length of a TXOP having a variable size with a TXOP mechanism, which, during successive superframes, expands and contracts the TXOP durations of the stations in the network as a function of completed polling interval relative to the requested polling interval, wherein said setting the length of the TXOP includes setting the TXOP duration as T_{TXOP} , and where $T_{TXOP} = \text{Min} (\text{Max}((\text{Actual Polling Interval}/\text{Nominal Polling Interval}) * T_{TXOP, Avg}, T_{TXOP, Min. Data Rate}), T_{TXOP, Max Data Rate})$ where $T_{TXOP, Avg}$ corresponds to the TXOP duration required to support the mean data rate at the agreed upon transmission rate, and $T_{TXOP, Min. Data Rate}$ and $T_{TXOP, Max Data Rate}$ corresponds to the minimum data rate and maximum data rates, respectively; and terminating transmit opportunities with a TXOP mechanism for stations which have successfully completed data transmission, thereby changing the length of a TXOP.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

11. Applicant's arguments filed 2/3/2006 have been fully considered but they are not persuasive.

- In the Remarks on pgs. 7-10 of the Amendment regarding claims 1 and 6, the Applicant contends that the scheduler of the invention and method of the invention changes the length of the superframe of the invention and that the Choi reference does nothing to change the length of the timeslots as the EOF merely allows the use of a time slot by another station. The Applicant further contends, therefore, that the applied art is not directed towards a CSMA/CA, asynchronous, contention-based LAN; it is directed towards an isochronous LAN.

- The Examiner respectfully disagrees. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., changing the length of the superframe) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Specifically, in regarding the Applicant's contention that the Choi reference does not teach changing the length of the superframe. The limitation of "thereby changing the length of the superframe" follows a limitation which says, "a TXOP mechanism for terminating transmit opportunities for stations which have successfully completed data transmission." The Examiner respectfully disagrees that terminating successful data transmission automatically or must change the length of the superframe. There must

be additional features of the scheduler that needs to be *claimed* that would result in the changing of the length of the superframe. As it is presented in claim 1, the feature “terminating transmit opportunities” is only a subset of features necessary for the limitation “thereby changing the length of the superframe” to be given any weight, other than a broad interpretation. In regarding the contention that the Choi reference does nothing to change the length of the time slots, the Examiner contends that “chang(ing) the length of the times slot” is not claimed. If the Applicant is suggesting that “changing the length of the superframe” is the same as “chang(ing) the length of the time slot, the Examiner disagrees. Even assuming, in arguendo, they are the same, the limitation of “changing the length of the superframe” would only be given a broad interpretation for the reasons given above. Please see the new rejection to claim 1 and 6 using the same Choi reference, necessitated by the Amendment, paying particular attention to Choi’s teachings concerning asynchronous, contention-based, local area network. In addition, the Examiner asserts that Choi’s invention is directed towards a CSMA/CA, contrary to the Applicant’s contention that it is not. Choi discloses that a carrier sense multiple access collision avoidance (CSMA/CA)-variant can be used, as in IEEE 802.11 (see Choi’s col. 4, lines 58-60).

- In the Remarks on pg. 10 of the Amendment regarding claims 2 and 3, the Applicant contends that because the Hadzic reference uses queuing theory and random number generator to determine buffer size and the Applicant’s transmit specification does not, the Hadzic reference is an non-analogous art.

- The Examiner respectfully disagrees. Claim 2 simply claims a buffer size predictor, which Hadzic does and Applicant admits in the Remarks on page 10. In response to applicant's argument that Hadzic is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Hadzic's invention is directed towards a LAN and the Applicant's invention is directed towards a LAN. Therefore, Hadzic is analogous art, which can be combined with the primary reference, Choi, which is also directed towards a LAN. Furthermore, given that Choi's invention is further directed towards using the bandwidth more efficiently, it would be obvious to one of ordinary skill to modify Choi's invention to reduce the amount of memory (the particular problem, noted above) necessary by predicting the required buffer size since the now more efficient bandwidth utilization method of Choi would suggest less memory would be required, thus motivating the combination with a memory saving buffer size predictor, such as the invention taught by Hadzic.

- Regarding claim 4, the Applicant contends in similar reasoning found in the Remarks concerning claim 1.

- The Examiner respectfully disagrees for the same reason found above concerning claims 1 and 6.

- Regarding claims 5, and 7-12, the Applicant contends they are allowable based on their dependency from claims 1 and 6.

- The Examiner respectfully disagrees on the allowability of claims 1 and 6 as discussed above. Therefore, the dependent claims 5, and 7-12 are not allowable on their **dependency** from claims 1 and 6. However claims 5 and 12 **are** allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. See the Allowable Subject Matter section above. Also note for claim 12, the Double Patenting Objection in paragraph 1 above.

Conclusion


12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Sol whose telephone number is (571) 272-5949. The examiner can normally be reached on M-F 7:30am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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4/15/2006